FAA

general aviation NEWS

May/June 1983

DOT FAA FLIGHT OPERATIONS SAFETY PUBLICATION

totem to keep yourself on course. Never saw so much empty space.

From 5,000' AGL looked like two big rivers of heavy cream.

OUTWARD BOUND!

Special Foreign Travel Issue Featuring:

- Airports of Entry, p.3
- Alaskan Adventure, p.6
- Hopping over the Pond, p.13

ALSO:

- The first Rocket-propelled aircraft, p.17

Oh, Paree! Felt like a latter-day Lindbergh

U.S. Department of Transportation
Federal Aviation Administration

FAA GENERAL AVIATION NEWS

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BRIEFS

HEAD TRIP. VFR pilots who store unused headsets on the coaming above the instrument panel may be letting themselves in for a big headache, in more ways than one. Electronic disturbance from a "live" headset can create severe compass error—in some tests up to 50 degrees. In actual flight one pilot strayed into a heavily trafficked control zone because of a 30-degree error induced in this manner. Loose objects in the cockpit are never a good idea, especially if they are electronic. Flight safety calls for a clean, tight ship.

WORDS YES, PICTURES NO. Instrument trainees and instructors should know that the charts and illustrations shown in the FAA Instrument Rating Written Test Guide (AC 61-8D) are no longer applicable for purposes of examination. Updating is being delayed until the advent of the next test format, expected in February of 1984. The written study material in the guide, however, is still current.

FINED FLYING OBJECT. The uncertificated "operator" of a soaring lawn chair, which lofted to an altitude of 16,000' with the aid of 42 helium weather balloons last July 2, has paid a $1,500 fine for various infractions of Federal Air Regulations. During his 90-minute "flight," he intruded hazardously into Federal airways and was spotted near several commercial jet aircraft. He finally crashlanded after shooting out some of the balloons with an airgun.

CHANGING AIM. There are 18 major changes in the most recent edition of the Airman's Information Manual which are of interest to pilots. Basic flight information now includes a list of phone numbers for LORAN-C information, clarified instructions for flight plan forms, and changes to instrument approach procedures. For details, consult a copy of AIM, available at FSS's and most FBO's or on subscription from the Superintendent of Documents, GPO, Washington, DC, 20402.

NO MISFUELING. New fuel nozzle band markings, which match the color-coded wing fueling decals introduced last fall by the General Aviation Manufacturers Association, offer a failsafe protection against tanking up someone's Avgas burner with kerosene. Pilots and FBO's can acquire the decals (75¢ ea.) and nozzle bands ($1.00 ea.) from GAMA, 1400 K St., NW, Washington, DC, 20005.

AIRPORTS OF ENTRY

Any port in a storm, of course—however, returning airmen must attend a small but official reception

Pilots planning flights beyond U.S. borders this flying season will be interested in the current status of Airports of Entry in the United States where the required inspections are provided by the Customs Service and other Federal agencies. With few exceptions, all aircraft entering or returning to U.S. territory from abroad must make their first landing at one of these airports and clear Customs prior to releasing passengers or cargo. There are two categories of Airports of Entry:

1. **International Airports.** The term "international" is confusing because there is no law to prevent any rural crossroads strip from calling itself "Podunk International Airport." For purposes of Customs clearance, however, free entry to a U.S. airport from abroad is given only at those airports which have been designated "International" by the Secretary of the Treasury or the Commissioner of Customs. Currently these airports number 54. Most are general aviation airports located near a U.S. border or coastline. Private pilots of small aircraft usually prefer them as a matter of convenience. Any appropriately situated airport which generates adequate traffic and is able to satisfy the need for the normal gamut of inspection facilities may apply to the U.S. Customs Service for official designation as an International Airport of Entry.

2. **Landing Rights Airports.** These are generally major airports and may be located in the interior of the country as well as on the perimeter. Incoming flights from abroad must obtain *prior permission to land* from the U.S. Customs representative. This requirement is necessary in order to assure the presence of adequate personnel to inspect the aircraft and occupants within a reasonable time. There are presently 239 landing rights airports in the United States. They are used primarily by air carriers and by large and turbine powered aircraft.

Occupants and cargo of aircraft are inspected at airports of entry not only by Customs officers but also by representatives of the Department of Agriculture, the Quarantine Branch of the U.S. Health Service, and the Immigration and Naturalization Service. These services work in coordination and on some occasions represent one another. Their obligations are not only to assure lawful entry and duty payment but also to prevent the importation of harmful insects, diseases or products. Recently, of course, the tremendous increase of airborne illegal drug traffic has placed heavy responsibility on the shoulders of the inspectors at airports.

Advance Notice

All private flights arriving from a foreign place must give advance *notice* to Customs officials, or risk tedious delays on the ground—or possible fines or even seizure of the aircraft if Customs regulations are disregarded. Since border crossing mandates the filing of a flight plan, it is often possible to relay the notice to Customs via an "ADCUS" (advise customs) notice in the flight plan. Wherever this service is not available—and currently that is the situation for all flights returning from Mexico—pilots are advised to radio or telephone Customs at the Airport of Entry direct. The extent of advance notice required by Customs varies from 15 minutes to several days (for a weekend arrival) and it is the pilot's responsibility to inform himself of this requirement.

The report must include the following:

- Type of aircraft and registration number
- Name of aircraft commander
- Number of alien passengers
- Number of citizen passengers
- Place of foreign departure
- Airport or other place of intended landing which has been approved by Customs

Private flights are dealt with differently by Customs than commercial or air carrier flights. The type of aircraft, of course, is no criterion: a private flight could involve a 747 jet, while a commercial flight could be carried out in a J-3 *Cub*. A private aircraft, for Customs purposes, is any civilian aircraft not being used to transport persons or property for hire.

Southern Crossings

At the present time, all pilots of private aircraft arriving from a foreign place in the western hemisphere south of the United States (including the Bahamas) are required to communicate to Customs by telephone, radio, or other means (either directly or through the FAA Flight Service Station) the *intended location and time of border/coastline crossing*, not less than 15 minutes prior to crossing the border/coastline. This special "Penetration Notice" is required, in addition to the normal advance notice report, of all aircraft arriving in the United States over the U.S./Mexican border, the Pacific coastline south of latitude 33° N. or the Gulf or Atlantic coastline south of latitude 30° N.

Note that a flight plan filed in Mexico may not be transmitted in time to meet this reporting requirement even though the flight plan included "ADCUS" or "Advise Customs." Pilots are advised to rely solely upon direct telephone or radio communication to Customs to report an intended arrival from Mexico.

All private aircraft arriving over the above described southern borders, unless exempted, are required to land at the specially designated airport listed below *nearest* the point of crossing the border or coastline. An aircraft which has an overflight exemption and is proceeding inland is not relieved of any requirements covering the penetration notice, landing rights application or advance notice of arrival.

Twenty-four hour free inspection service will be available on weekdays, Monday through Saturday, at the southern border penetration airports designated with an asterisk (*). Free inspection is also given at these airports on Sundays and holidays between 8:00 a.m. and 5:00 p.m. For service at off-duty hours, Customs

overtime charges of up to $25 may be assessed.

Flyers returning from south of the border and intending to clear Customs at any of the southern airports *not* shown here with an asterisk can check with Customs (at the telephone numbers listed) concerning hours of free service and possible overtime charges. Outside of scheduled tour of duty, Customs officers clearing private aircraft do so on a reimbursable overtime basis only. Where appropriate, travel and per diem costs may be added.

Other Airports

Private pilots returning to the U.S. from other than the southern zone may elect to land at any official international airport of entry or apply to any landing rights airport (such "rights" are rarely withheld, during regular work hours). Permission to land at airports other than "international" and "landing rights" airports may be obtained in some limited cases; however, advance arrangements (preferably in writing) must be made with the Customs office nearest the airport of intended arrival. Advance *notice* of arrival time is also required as usual. Pilots should be aware that mileage and per diem costs for Customs services at "non airports of entry" may be accrued, in addition to any overtime charges, if applicable.

Failure to clear Customs as required could result in penalty fines of up to $500 for each violation, and possible seizure of aircraft.

Short Flights

If flying time from any foreign airport to the U.S. is less than one hour, the pilot should request his application for landing rights, if required, and transmit his arrival notice directly to the U.S. Customs office *before departure* from the foreign airport (unless prior arrangements were made). This is necessary to allow inspectional personnel to be assigned and at the airport prior to arrival of the aircraft. FAA cannot guarantee delivery of a message (under the flight plan notification arrangement) in sufficient time on such short notice.

Changing Destination En Route

Pilots may find it necessary or convenient to change the intended airport of destination en route; however, definite confirmation *from Customs* permitting a change must be received. In the event of an emergency, Customs must be notified as soon as possible; occupants and cargo should remain at or near the aircraft until released by inspectors.

To avoid the possibility of incurring overtime charges at two airports, it is important that pilots immediately cancel their request for overtime service at airport of original destination when diversion to a different airport occurs. If the request to cancel overtime services arrives too late to prevent the officer from leaving for the original airport, it is possible that the aircraft operator may incur overtime charges at both airports.

On Arrival

Private aircraft are required to report directly to Customs for inspection immediately upon arrival. Normally a Customs officer (or an officer from the Immigration and Naturalization Service or Department of Agriculture) will be present if a pilot has given proper advance notice of arrival. Should no inspecting officer be present, the pilot should report his arrival to Customs by telephone or most convenient means. He should keep the aircraft, passengers, crewmembers, baggage, food and cargo intact in a segregated place until the officer arrives or until he has received special instructions from a Customs officer.

The pilot may also be requested to produce for inspection a valid airman's certificate, medical certificate (14 CFR 61.3) and the aircraft registration certificate.

Crew and passenger baggage will be examined in the same manner as that of other international travelers. A verbal declaration of articles acquired abroad will suffice, except that a written declaration, Customs Form 6059-B (or appropriate substitute), shall be presented when duty is to be collected or when the inspecting officer deems a written declaration necessary. Noncommercial cargo and unaccompanied baggage carried on board private aircraft shall be accounted for on a baggage declaration (CF 6059-B) prepared by the pilot in command, and appropriate entry for same shall be required. Customs officers will furnish the necessary forms. In addition, the inspecting officer may require that all personal items, baggage and cargo be removed from the aircraft for inspection, and he may physically inspect the aircraft. The pilot is required to assist in opening baggage and compartments.

"Failure to clear customs as required could result in penalty fines up to $500 for each violation, and possible seizure of aircraft."

Plant and Animal Quarantines

The importation of plants, plant products, all birds, certain animals, meats, and meat and animal products is regulated by the U.S. Department of Agriculture (USDA) to prevent the introduction of plant and animal pests and diseases. Agricultural items should not be brought to the United States in lunches or otherwise unless you are informed in advance by Agriculture inspectors of the Animal and Plant Health Inspection Service (APHIS) or Customs officers that such items are admissible. Prohibited items on board will be confiscated. Any such products on board the aircraft must be called to the attention of the inspecting officer by oral declaration. An APHIS inspector must be present when you return from an area where there has been an outbreak of destructive pests or diseases. Customs will advise APHIS of flights arriving from, or stopping in, such an area.

For further information on this subject, refer to the FAA International Flight Information Manual or contact USDA.

Endangered species of plant and animal wildlife and products thereof may be prohibited or require permits or certification by the U.S. Fish and Wildlife Service.

Repairs to Private Aircraft

Aircraft belonging to a resident of the U.S. and taken abroad for noncommercial purposes and returned by the resident shall be admitted free of duty upon being satisfactorily identified. Repairs made abroad to such aircraft, if incidental to use abroad, must be reported to Customs but are not subject to duty. Repairs not incidental to use abroad and alterations and additions made abroad shall be assessed with duty up to their value at the rate at which the aircraft itself would be dutiable if imported. Accessories acquired abroad are dutiable as if separately imported.

In the event that foreign-made parts, such as spare engines, must be replaced abroad, these parts may be dutiable upon reentry to the United States. The reimportation of U.S.-made parts may require entry. The nearest U.S. Customs office should be contacted for clarification of this matter in each particular instance.

In Case of Emergency

If an emergency landing is made in the United States, the pilot should report as promptly as possible by telephone or most convenient means to the nearest Customs office. He should keep all merchandise or baggage in a segregated place and should not permit any passenger or crewmember to depart the place of arrival or commingle with the public without official permission, unless it is necessary for preservation of life, health, or property.

Returning Without Landing

Aircraft returning to the United States or Puerto Rico without having landed outside the United States are not required to give advance notice of arrival or report to Customs.

Hours of Service

Generally speaking, free service is provided at airports during regular business hours (usually 8 AM to 5 PM), Monday through Saturday, and from 8 AM to 5 PM on Sundays and national holidays. However, tours of duty at airports are based on the need for services and are altered at some ports to coincide with schedule changes and peak workloads. Private aircraft operators may contact, prior to departure, the Customs officer in charge at the U.S. airport of intended arrival, in order to ascertain those hours during which free service can normally be expected.

Customs Headquarters

Washington, D.C. 20229/1301 Constitution Avenue, N.W.
Attn: Office of Border Operations ■

SPECIAL REPORTING AIRPORTS OF ENTRY
SOUTHERN BORDER, GULF COAST, SOUTH ATLANTIC COAST

USEFUL PUBLICATIONS

"International Flight Information Manual." (IFIM) Complete listing of all U.S. Airports of Entry and Landing Rights Airports, with details of service available, method of contact, telephone numbers, radio frequencies, etc. Also lists ICAO-designated international airports for entire world, with required documentation, procedures, fees, points of contact, and associated information.

Issued quarterly on subscription (first quarter starts with April). Send check or money order with title to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The current subscription price is $30 domestic, $37.50 foreign. Contact GPO directly (telephone number 202-783-3238) for possible price changes. Sounds expensive, but well worth it if you travel abroad extensively.

"U.S. Customs Guide for Private Flyers." A *complete* guide to Customs requirements, with listing of International and Landing Rights Airports and specific details on reporting requirements and hours of Customs Service, telephone numbers, etc. For sale by the Superintendent of Documents, address above. Individual free copies may be picked up at Customs offices at international airports. The 1983 issue is just coming off the press.

"Designated U.S. Airports Servicing International Air Traffic." FAA Advisory Circular 150/5000-5, explains different categories of U.S. International Airports, with current listing. Free from DOT Publication Section, M-443.1, Washington, DC 20590.

Location	Name and Telephone Number of Customs
Arizona	
Douglas	*Bisbee-Douglas International Airport 602-364-8486
Nogales	*Nogales International Airport 602-287-2562
Tucson	Tucson International Airport 602-287-2562
Yuma	Yuma International Airport 602-627-8326
California	
Calexico	*Calexico International Airport 715-357-1195
San Diego	*Brown Field 715-428-7207
San Diego	*San Diego International Airport (Lindbergh Field) 715-428-7207
Florida	
Fort Lauderdale	Executive Airport 305-771-8095
Fort Lauderdale	Fort Lauderdale International Airport 305-522-3218
Fort Pierce	St. Lucie County Airport 305-461-1200
Key West	Key West Airport 305-294-1044
Miami	Miami International Airport 305-526-2875
Miami	Opa-Locka Airport 305-688-0832
Tampa	Tampa International Airport 813-228-2395
West Palm Beach	West Palm Beach Airport 305-683-1806
Louisiana	
New Orleans	Moisant Airport (New Orleans International Airport) 504-467-4319
Texas	
Beaumont	Jefferson County Airport 713-982-2832
Brownsville	*Brownsville International Airport 512-542-4232
Corpus Christi	Corpus Christi International Airport 512-888-3352
Del Rio	*Del Rio International Airport 512-775-8502
Eagle Pass	*Eagle Pass Airport 512-733-9468
El Paso	*El Paso International Airport 915-543-7430
Houston	Hobby Airport 713-921-4307
Laredo	*Laredo International Airport 512-722-1113
McAllen/Hidalgo	*Miller International Airport 512-843-2231
Presidio	*Presidio-Lely International Airport 915-229-3349

**24-hour FREE inspection service available weekdays, Monday through Saturday.*

ALASKAN ADVENTURE

Crossing the Canadian "bush" is still a formidable trek for the "cheechako" pilot

Flying to Alaska over Canada's northwest provinces and the Yukon Territory in a small plane is, for many general aviation pilots, the adventure of a lifetime. Increasing numbers of pilots have been making the journey in recent years, especially since the completion of the Alcan Highway which serves as a helpful guidepath for VFR flight via the inland routes. The Canadians are happy to have U.S. aircraft flying over their territory en route to Alaska, but they feel that many of the accidents which have occurred could be avoided if the conditions of flight in Canada were better understood.

Every year about a dozen U.S. registered light planes, bound to or from Alaska, crash in Canada, principally in British Columbia and Alberta, according to figures supplied by Transport Canada, the Canadian counterpart of our Department of Transportation. Many of these accidents have involved fatal or serious consequences, with inevitable delays in locating the wreckage. The prevailing cause of these serious accidents can be summed up in a single phrase: *lack of preparation for coping with the environment.*

Pilots who have flown only within the United States are simply not prepared for the extreme contrasts of terrain and weather that may be encountered in northwest Canada, or for the dearth of human habitation or landmarks. "Sparsely settled" is the term used by Canadians to describe most of the land, and in many areas that is an understatement. The average number of human beings encountered is less than one person per square mile. This compares to an average of about 60 persons per square mile for all of the United States. Consequently, the pilot who has the misfortune to crashland away from the settled areas could wander for weeks or even months without meeting a solitary person. Frosty nights, even in summer, and daytime predators, ranging from swarming insects to huge grizzly bears, could add to his distress.

Canadian officials recommend summer and early fall as the most favorable seasons for flying up to Alaska. In the late fall and winter, extreme cold (temperatures as low as 60° below zero F. have been recorded in the Yukon) and heavy snows are serious deterents. In spring the weather may be pleasant but the many unpaved landing strips may prove soggy and difficult to negotiate.

The land mass confronting the pilot who is Alaska-bound from the "Lower 48" is a seemingly endless sprawl of mountains, some of which are permanently snow-capped. The highest Canadian mountains are along the coast, ranging up to nearly 20,000 feet near the Alaskan border. Inland there are the northern Rockies cut through by countless river valleys, with streams flowing in all directions. The complexity of the Canadian mountain ranges makes it difficult for small aircraft to depend on visual reference pilotage or VHF radio navigation; and most general aviation aircraft do not have the capability to fly IFR safely over this section of the country, where MEA's may be over 10,000′ MSL.

The prevalence of cloud layers in the valleys during much of the year may oblige the VFR pilot to fly at relatively low altitudes, which limits his VHF radio reception and transmission and reception range in the event of

engine malfunction. The predominance of thick timber and uneven terrain underscores the problems of an emergency landing for the pilot who is unfamiliar with the area. American pilots whose experience has been limited to tracking from VOR to VOR may be totally unprepared for the flight environment they encounter north of the Canadian border. Key failings in this regard include:

• **Lack of pilotage experience.** The network of VOR NAVAIDs is so extensive in the United States that many U.S. pilots have never attempted to navigate depending only upon ground reference and a chart. When such pilots head north into the sparsely settled areas of Canada, where it is possible to fly for a hundred miles without passing a town, the problem of staying on course can become critical. The problem is worsened if the pilot is unfamiliar with Canadian aeronautical charts.

The environment may contain few useful landmarks (for the uninitiated). Many of the routes follow waterways or river valleys which appear to have an infinite number of forks and junctions. One wrong turn can lead the unwary pilot into a maze of twisting valleys amid steep mountain slopes, and culminate in a box canyon capped by an overcast.

An American pilot, returning to Alaska alone via the Alcan Highway one summer, made a wrong turn up a valley in the Liard River sector, eventually ran out of fuel and crashlanded in a wild, uninhabited area of the Yukon Territory. After nine days of blundering through woods and rafting down streams, he was fortunately spotted (over 100 miles from the search area) and rescued by a Canadian Search and Rescue aircraft. Virtually hysterical at the time of rescue, the pilot recounted a harrowing tale of being trailed by wolves and grizzly bears.

• **Lack of appropriate charts.** Apparently some American pilots are naive enough to imagine it is possible to find their way over Canada to Alaska by simply following the shoreline, or roads such as the Alcan Highway, with the aid of a roadmap alone. This is an open invitation to disaster. The area north of the border is so vast and the terrain so varied that even pilots with adequate charts can get lost—by attempting short cuts, or by mistaking a logging road for the graveled highway. To fly the overland route VFR to Alaska you should have at least a dozen Canadian pilotage charts (similar to U.S. sectionals but covering one-fourth the area), or half a dozen WAC charts.

You should also have the appropriate U.S. sectionals for Alaska, from Ketchikan to Fairbanks, and you should study the Alaska Supplement to the Airman's Information Manual for required equipment and supplies, recommended procedures, and general advice. VFR navigation charts, now being introduced in Canada, cover the same area as our sectionals, with much of the same information. However, the only one available now for Alaska-bound pilots is the Alcan Highway chart.

VFR pilots should also have on board the Canadian VFR Chart Supplement, which updates the aeronauticals every 112 days and lists facility frequencies. The Supplement also contains a complete listing of airports south of 60° N latitude (the Northern Supplement contains the remainder), with sketches and summary details; and a wealth of other information on flight procedures, restrictions, and hazards to flying in Canada. *Terminal area charts* are needed by pilots flying into or near the major cities (Vancouver and Calgary, for example), and floatplane pilots should have the Canada Air Pilot Water Aerodrome Supplement.

Canada-bound IFR pilots should carry the IFR Chart Supplement as well as en route and instrument approach charts. IFR qualified pilots should have the approach charts even though they do not plan to file IFR, since a change in the weather may leave one with no alternative but an instrument landing. Canadian air traffic officials are repeatedly troubled by American pilots asking for radar monitoring, in IFR conditions, to an airport for which they have no approach plates on board.

"Air Tourist Information Canada" is an excellent introductory booklet for visiting pilots, available free from Transport Canada, AISP/A Ottawa, Ontario, Canada, K1A ON8. (Current issue is dated 1982/83.) For air travelers in British Columbia a very useful planning chart, the "Air Facilities Map," is available free from the British Columbia Aviation Council, P.O. Box 23259, Vancouver, A.M.F. B.C., Canada, V7B 1W2 V7B. Ask also for the supplementary "VFR Flyways." Favored routes, airports, terrain features, and pertinent aeronautical charts are identified.

"Fly Super Natural," despite its propangandistic title, is a popular little general aviation guide packed with all kinds of extremely useful information for the pilot flying in Canada's westernmost province. Free from Tourism British Columbia, 1117 Wharf St., Victoria, B.C., V8W 272, Canada. (Also located in Vancouver, B.C. and in San Francisco, Los Angeles, and Seattle; Canadian Tourist Offices in other major U.S. cities can get it for you.)

There are several good booklets on flying the Alcan Highway in Canada; one is free from Transport Canada, AISP/A Ottawa, Ontario, K1A ON8, Canada. The privately published *chart package*, "Flying the Alaska Highway," combines aerial photos with narrative description to provide what the editors call a three dimensional picture of each segment of the route, with mile posts identified; available from Skylark Aviation, Ltd., 7314 Hunterstown Crescent, Calgary, T2k42, Alberta, Canada. The current price is $12 Canadian.

Transport Canada's "List of Civil Aviation Publications," free from the Ottawa address given above, also lists a number of useful aviation publications sold to the public, including the Aeronautical Information Publication (Canadian version of U.S. Airman's Information Manual). The price is $18.30 for the basic manual or $36.60 for a year's subscription with amendments. The AIP is sold by Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Ontario, Canada, K1A 059.

• **Lack of familiarity with local or isolated landing strips.** Many of these strips have significant restrictions or terrain problems which can easily cause an uninitiated pilot to trouble on landing or takeoff. In remote areas the strips may be without radio service, and pilots who have not been briefed in advance by the nearest ground facility may be unaware of such problems as local turbulence, flooding, landslides, runway slope, etc. Do not be reluctant to ask local pilots about airstrips, even if this means a long-distance phone call. It could save you money in repair bills in the long run.

For example, an accident at Barkersville, in central British Columbia, involved a four-place aircraft attempting to take off, fully loaded, from a strip with a pronounced but not readily apparent upgrade. The aircraft apparently just managed to become airborne at the end of the runway, but failed to clear the load on a logging truck that unfortunately was traveling on the road that circled the strip. The airplane cartwheeled in the air and slammed into a river bank, killing all four persons on board. Overloading is a frequently cited cause of accidents involving aircraft laden with recreational gear, fishing catches, trophies, etc., as well as passengers. *Keep it light—carry only essentials.*

• **Unfamiliarity with nondirectional beacons.** Beacons are used for navigation much more commonly in Canada than in the United States, where many pilots have no experience with them at all. If they fly into Canada without an appropriate (low frequency or ADF) receiver, they are severely handicapped. Some Canadian airports, especially those surrounded by high terrain, have two or even three nondirectional beacons to help VFR traffic avoid collisions with adjoining mountain slopes, as well as for carrying out instrument approaches. In some areas, ruggedness of terrain and remoteness of location make the installation of an OMNI range prohibitively expensive. An ADF (Automatic Direction Finder) is an extremely important piece of safety equipment for aircraft flying over northern Canada, and pilots who are not familiar with its usage should make a point of practicing ADF navigation before they cross the border.

Unfamiliarity with NDB location led to an accident near Victoria, B.C., where an American pilot was making an instrument approach after departing Seattle. The pilot was informed en route that the Victoria VOR was out of service, and advised to proceed to the beacon located southeast of the airport. Apparently he tuned instead to another beacon located *northwest* of Victoria, so that when he was cleared for the approach and proceeded in a westerly direction he was unable to locate the airport and eventually, in very poor weather, collided with a hillside near Shawnigan Lake. It was a fatal crash.

• **Unfamiliarity with Canadian flight rules.** Air traffic and flight operation rules are basically the same in Canada as in the United States, but there are some significant differences which many American pilots appear to ignore. These include:

1. *Uncontrolled VFR flight "on top" (above an overcast) is not permitted.* This is sometimes confused with "controlled VFR" (CVFR)—a flight conducted under visual flight rules within Block Airspace, in accordance with an air traffic control clearance, by a pilot with an instrument rating. Block Airspace is the airspace within designated airways, above 9,500

Unattended landing strips in remote areas should be checked out in advance, for unsuspected pitfalls.

feet ASL (12,500 feet ASL west of longitude 114° west) up to but not including 18,000 ASL. Canadian air carrier pilots have reported a number of near midair collisions with U.S. planes in Block Airspace (apparently maneuvering illegally). CVFR AIRCRAFT MUST DEPART THE AIRWAY WITHOUT DESCENDING OR CLIMBING.

2. *A flight plan or flight notification is mandatory for operations in sparsely settled terrain.* As in the U.S., search is activated one hour after a flight plan closure is overdue. The flight *notification* form is used when the destination is in a remote location where closing a flight *plan* would be difficult for lack of communications. The pilot designates a responsible person who will notify air traffic control that an aircraft is overdue if it is not heard from within 24 hours after an agreed upon time—whereupon a search and rescue effort will be launched immediately.

Canadian officials are especially concerned about American pilots failing to observe the flight plan/notification requirement when flying into sparsely settled country. They are frequently besieged with telephone calls from relatives in the States seeking an overdue relative, with only scanty information to offer searchers: ". . . a red airplane, I think, or maybe red and blue . . . I'm not sure which kind . . . no, I don't know the number or exactly where he was going, some big fishing lake, you must know it, near the Alaska line . . ." Not much to go on, in the vast area of northwestern Canada.

On the other hand, *failing to close* a flight plan or notification produces a tremendous amount of wasted search effort on the part of personnel who might be sorely needed elsewhere.

Incidentally, filing a flight plan before crossing the border (in either direction) is mandatory, as is making your first landing beyond the border at an airport of entry. Failure to do so could put the Mounties on your trail, or the U.S. Customs or Immigration authorities. On exiting Canada, customs clearance is not required for private aircraft.

Note that Canadian VFR flight levels have now been changed to conform to U.S. requirements, at or above 3,000 feet ASL: even thousands plus 500 feet for westerly headings, odd thousands plus 500 feet for easterly headings. For instrument or CVFR flights, flight levels are the same as for the U.S. IFR operations—odd or even thousands of feet, depending upon heading.

• **Lack of adequate survival gear.** Specific equipment and rations are required in Canada for all flights within the designated sparsely settled areas, which includes more than 90% of the country. Required items are: *sleeping bag, flashlight, pocket compass, axe, matches in waterproof container, insect lotion, rifle and ammunition (no small arms), five pounds of concentrated food per person, cooking utensils, hunting knife, mosquito nets, fishing tackle, snare wire, a stove and supply of fuel, tents or engine and wing covers (to stretch out for signalling), two pairs of snow shoes, a signalling mirror, at least three flares, a survival manual, and a flexible saw blade.*

CANADIAN TERMINOLOGY

(Partial List)

Aerodrome

Any area of land or water set apart for the arrival and departure, movement or servicing of aircraft.

Aerodrome Traffic Zone

An airspace of defined dimensions extending upwards vertically from the surface of the earth up to at least 4,000′ AGL and having a radius of five nautical miles from an uncontrolled airport; no air traffic services are provided.

Airport

An aerodrome licensed by the Department of Transport.

Circuit

Landing or departure patterns of an aerodrome.

Control Zone

A controlled airspace of defined dimensions extending upwards vertically from the surface of the earth up to at least 4,000′ AGL and having a radius of five nautical miles from a controlled airport; air traffic services *are* provided.

Danger Area

An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

High Level Airspace

All airspace within the Canadian domestic airspace at or above 18,000′ ASL.

Low Level Airspace

All airspace within the Canadian domestic airspace below 18,000′ ASL.

Military Flying Area

An airspace of defined dimensions within the High Level Airspace designated for the use of military training and testing.

Alaskan requirements are similar except that food *sufficient for two weeks* per person is required, plus *a first aid kit, a fishing net, and two signalling devices in sealed containers.* You may or may not be asked about your survival gear when you file a flight plan: the responsibility for having it on board is yours.

Stories of prolonged suffering from exposure and hunger, following forced landings in Canada are legend. The rugged character of the mountains and the density of the forests has to be seen in order to appreciate the difficulties of search and rescue. One October a small Canadian aircraft became lost in poor weather in a wooded narrow valley near Vancouver, B.C., and crashlanded on a mountain slope less than 10 miles from a main highway. The pilot, who was alone, survived the crash, but his radio was smashed and he had no ELT or other survival gear. Clad only in a light business suit, he elected to walk out, following a stream toward what seemed to be the floor of the valley where the road passed. No trace of the pilot has been found, although the aircraft was located on the morning following the accident. Because of this and similar occurrences, Canada now requires aircraft overflying its territory to have an operating emergency locator transmitter on board.

The first important decision is the route to be followed to Alaska. The shortest flight from the Seattle area is directly up the Pacific coast of British Columbia, about 700 miles from Seattle to Ketchikan, on the lower end of the Alaskan "Panhandle." There are no problems for IFR operations. For light aircraft operating VFR, most experienced pilots agree that this route can be flown most safely in *seaplanes or floatplanes*, piloted by airmen experienced in flying by reference to the ground and having some knowl-

SELECTED CANADIAN CHARTS*

	Price (U.S. dollars)
VFR	
Pilotage Charts (short, medium range)	$3.00
VFR Navigation Charts (Alcan Highway)	$3.50
World Aeronautical Charts	$3.50
VFR Terminal Area Charts	$3.00
IFR	
Enroute Low Altitude Charts	
(single sheet—two charts)	$3.00
(annual subscription—52 day updates)	$9.25
Enroute High Altitude Charts (one sheet)	$3.00
(annual subscription)	$9.25
Canada Air Pilot East, or West, with amendments (Instrument approach procedures)	$29.75
SUPPLEMENTAL INFORMATION	
VFR Supplement (annual subscription)	$17.50
(single copy)	$10.50
IFR Supplement (annual subscription)	$24.00
(single copy)	$6.50
Water Aerodrome Supplement (single)	$10.50
(subscription)	$5.00
Northern Supplement (annual subscription)	$20.00
(single copy)	$5.25

Prices, given in U.S. currency, are subject to change.
Charts and Supplements are available from:
Canada Map Office
615 Booth Street
Ottawa, Ontario, Canada K1A OE9
A free copy of the catalog of charts may be had from this address.

**Note:* Charts and other non-free publications ordered from Canada must have a $2.00 service and handling charge *per order* added (unless only subscriptions are ordered). Make checks or money orders payable to the Receiver General for Canada.

edge of the area. They suggest that for your first trip you fly with a pilot already familiar with the route. The jagged mountainous coastline with its innumerable islets and inlets and fiords is one of the easiest places in the world to get lost, particularly when the sea fog obscures visibility—as it does much of the time.

Out of Puget Sound the VFR flight path follows the shipping lanes, passing between Vancouver Island and the British Columbia mainland for about half of the journey north. After leaving Port Hardy the route proceeds along narrow winding passageways to Prince Rupert, a distance of about 300 miles without a single landplane airport.

The more favorable beaches for emergency landings are shown with wavy lines on WAC charts—also some cabin shelters. However, the shore terrain is always susceptible to change from landslides, flooding, winds, log jams, etc.

Weather forecasts for these areas are of limited value, owing to the changeability of local conditions. Pilots have to be prepared to turn back or put the plane down on the water on short notice. The latter decision frequently requires good seamanship to cope with swift currents, high tides and obstructions in the water. Getting the plane down may be only a small part of the problem; keeping it afloat could pose the major difficulty, especially when no wharf or protected cove is in sight. Adequate mooring equipment on board is a must.

Prolonged water taxiing at low speeds, while searching for an accessible beach and avoiding submerged obstructions, can overheat and possibly damage an engine. "Knowing the territory" from personal experience, plus advice from veteran local pilots is the best safety cushion for safely harboring an airplane along the "Inside Passage."

Snaking through the mountains, the Alcan Highway offers navigational guidance and contact with surface traffic.

Some veteran Alaskan pilots who fly up and down the coast regularly elect to use aircraft with minimal instrument panels, sometimes even foregoing gyro instruments, because of their unwillingness to depend on anything but their own eyes and their knowledge of the terrain below—flying close to the surface at all times, and putting the plane down whenever visibility becomes uncertain.

OVERLAND EAST

The overland terrain is dominated by two major mountain ranges, tne Rocky Mountains and the Coastal Mountains, which extend in a northwesterly direction roughly parallel to one another. The Coastal range has the highest peaks, ranging over 20,000′, and numerous glaciers; it hugs the coastline and forms a solid barrier from Vancouver, B.C. to Valdez, Alaska.

The Rocky Mountain range is more extensive, with its highest mountains (located along the border between British Columbia and Alberta) reaching up to about 12,000′. Central interior British Columbia is somewhat flattened out by an immense elevated plateau (the Fraser Plateau). Further north and west, the Rockies again rub shoulders with the Coastal Range.

There is some farming and pasture land in the southernmost valleys of these two Canadian provinces, but most of this area is an almost continuous stretch of timberland, with some lakes but few "natural" landing fields for wheel planes, even for taildraggers. There are countless creeks and valleys, but few roads, and some of these may be abandoned logging trails. Human habitations are few and far apart, and wild animals form the dominant population. Great country to visit, but no place to get lost in.

Alaska or Yukon-bound pilots who originate their flights in the United States east of the Rockies usually make Calgary or Edmonton, Alberta, their point of entry into Canada.

Radio Services

The major points along the Canadian segment of the Alcan Highway have VOR radio, as well as nondirectional beacons, but their utilization depends upon the altitude of the aircraft and the atmospheric conditions. Radio-equipped airports are located at Whitehorse, Watson Lake, Fort Nelson, and Fort St. John, supported by flight service stations offering flight assistance and weather information.

Flight service stations may be contacted in flight, as environment conditions permit, (on frequency 122.2 or 126.7) for current weather or terminal forecasts. Frequency 122.2 is also used for air-to-air communications. As in the United States, 122.8 is the usual UNICOM frequency.

The flight service station is an invaluable source of information about local flying conditions, and a personal visit is recommended. Knowledge of radio signal outages, fuel availability, terrain or runway damage, and all manner of local flying lore can be imparted to the visiting pilot.

From Calgary to Dawson Creek, if you follow the main highway via Edmonton, it is a 550-mile flight (all mileage given here will be statute) over fairly open, flat land, with no problems to be expected. The town of Dawson Creek, just inside the British Columbia border (not to be confused with Dawson in the Klondike), is the starting point of the 1,520 mile Alcan Highway that leads to Fairbanks. This narrow twisting ribbon of gravel is the inland lifeline that keeps most Alaska-bound pilots on course, and provides them with an emergency landing area. It is a great engineering feat, but still it is no Rt. 66. Since 1970 some 50 U.S. registered aircraft have gone down near the Canadian segment of this road, with over 30 fatalities.

Few U.S. pilots realize the importance of making the trip north in easy stages. Dr. Ian Scott, medical officer for Canada's Western region, has estimated that two hours of low altitude navigation along the Alcan Highway can be the stress equivalent of a full day's VOR navigation in the States. The unusual environmental and social conditions encountered in the far north place additional stress on the pilot and could impair his flying unless he deliberately "paces" himself, takes time to adjust his habits and feelings, and refuses to hurry on or fly in marginal weather. For many experienced pilots, VFR along the Alcan Highway means enjoying at least a 5,000′ ceiling and five miles visibility. Scattered clouds that are easily dodged in open country can be a menace in a narrow canyon.

Overland West

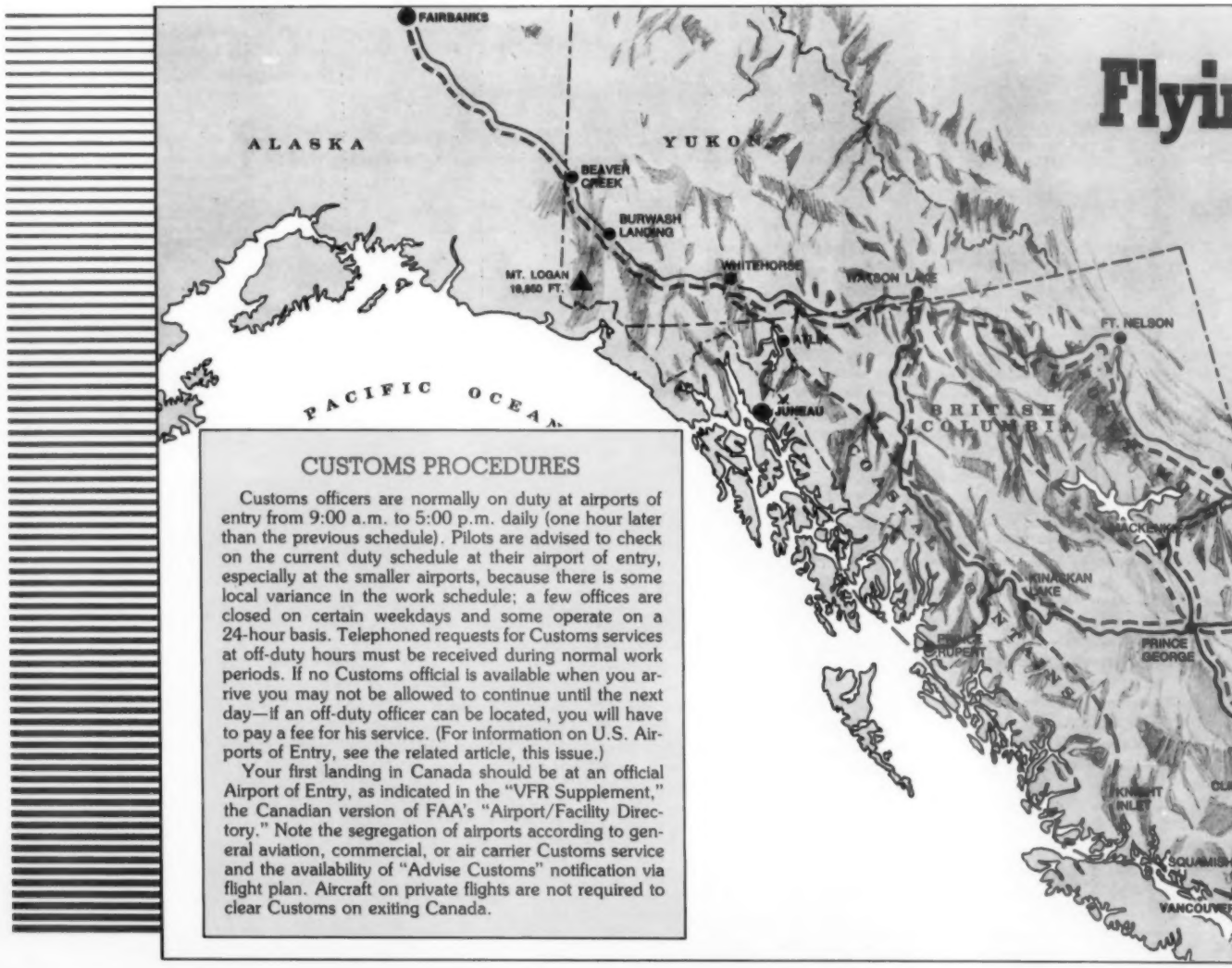
Alaska-bound pilots heading for the Alcan Highway and originating west of the Rockies usually follow one of the several river valleys that run parallel to the Rockies in British Columbia.

Alcan Highway

The Alcan Highway was carved across the Rockies at an average elevation of about 2,500′ above sea level. This intermountain "corridor" is walled for the most part by high mountains which may leave little room for maneuvering at low altitudes.

Mile post number one is at Dawson Creek, but flight planning is better accomplished at Fort St. John, a short 47 mile hop away. St. John has an "aeradio station" (these are now called flight service stations) for flight planning assistance, and trained meteorologists for weather briefings.

For the 300 mile flight on to Fort Nelson from St. John, the VFR pilot can either follow the highway or else fly directly along the VOR airway (remembering that he must remain below 12,500′ ASL). En route, the terrain rises imperceptively. At midway the road elevation is considerably higher than at St. John or Nelson; pilots have been trapped by low ceilings in this area and some prefer to follow the railroad, which permits flying at a lower altitude.



CUSTOMS PROCEDURES

Customs officers are normally on duty at airports of entry from 9:00 a.m. to 5:00 p.m. daily (one hour later than the previous schedule). Pilots are advised to check on the current duty schedule at their airport of entry, especially at the smaller airports, because there is some local variance in the work schedule; a few offices are closed on certain weekdays and some operate on a 24-hour basis. Telephoned requests for Customs services at off-duty hours must be received during normal work periods. If no Customs official is available when you arrive you may not be allowed to continue until the next day—if an off-duty officer can be located, you will have to pay a fee for his service. (For information on U.S. Airports of Entry, see the related article, this issue.)

Your first landing in Canada should be at an official Airport of Entry, as indicated in the "VFR Supplement," the Canadian version of FAA's "Airport/Facility Directory." Note the segregation of airports according to general aviation, commercial, or air carrier Customs service and the availability of "Advise Customs" notification via flight plan. Aircraft on private flights are not required to clear Customs on exiting Canada.

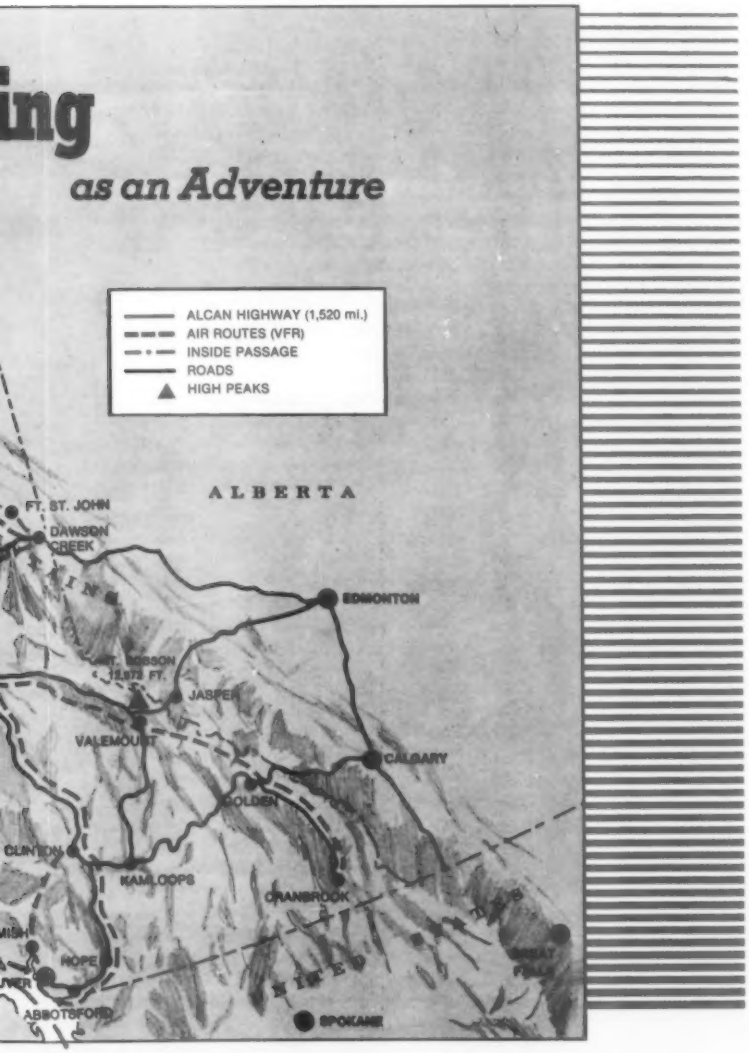
After Fort Nelson the highway begins its westward penetration of the Rockies, where it is soon overshadowed by mountain peaks of over 7,500′. There are both communications and navigation radio facilities along the remainder of the route (low frequency as well as VHF in Canada); but the VFR pilot who is flying within the corridor and below the airway will have inconsistent contact with VOR radio signals at best, because of the terrain. Clouds tend to form along the peaks and frequently solidify into an overcast that may force the unwary VFR pilot into a collision with rising ground.

Fort Nelson and Watson Lake

The 300 mile stretch between Fort Nelson and Watson Lake, just inside the Yukon, is notorious for very abrupt changes in weather, from blue skies to complete overcast, from calm air to severe turbulence and windshear, which can result in loss of control if the pilot does not anticipate the problem soon enough.

West of Nelson, about 30 miles before reaching Muncho Lake, the highway makes a right angle turn. Several pilots have become lost and crashed after missing this turn and following an old mining road that parallels the highway and then swings south. Some bush pilots prefer to fly north along the Fort Nelson River valley instead of the Alcan Highway and then head west along the Liard River until it joins the road. Again, the advantage is a lower flight altitude, plus less turbulence, but *there are no landing fields en route*. There are seaplane as well as landplane facilities at Watson.

An accident all too typical of the region occured to a U.S. pilot returning from Fairbanks during May. Weather had been excellent along his southbound route as far as Watson Lake, where he received reports of approaching rain, snow, and low fog (along the south-easterly continuation of the road, near Summit Lake). The pilot, flying alone, decided to have a look for himself. He proceeded as far as the lake, about 75 miles west of Fort Nelson. There he observed an immense buildup of clouds on the other side of the summit. In his haste to turn back, the pilot unfortunately flew the aircraft into rising ground. It was 11 days before aircraft from the Rescue Coordination Centre at Victoria located the wreckage. The pilot had been killed on impact.



Yukon Border

The Alaska-bound pilot, after leaving Watson Lake, follows the Alcan Highway as it weaves its way between 6,000 and 7,000-foot peaks along the British Columbia-Yukon border, and then moves sharply northwest in the direction of Whitehorse (Milepost 919). Here adverse atmospheric and mineral conditions, as well as terrain obstacles, frequently interrupt radio signals for low-flying aircraft. Nevertheless, most pilots of light planes find that their greatest safety lies in flying low enough to keep the highway clearly in view, and to thereby avoid wandering off over old logging roads or apparent short cuts.

Leaving Whitehorse, pilots following the Alcan Highway must take care not to be misled by a northerly spur (to Braeburn in north-central Yukon) but to follow the Alcan as it moves west to Burwash, and on to Beaver Creek near the Alaskan border (Milepost 1315). Between the highway and the Pacific Coast extends an enormous glacier field hundreds of miles long, dominated by Mount Logan (19,850′). But to the northwest, in the direction of Fairbanks, a broad river valley opens up, affording the pilot normally uninterrupted VOR radio navigation for the remainder of the route.

The longest of these valleys, known as "The Rocky Mountain Trench," runs from the vicinity of Cranbrook (near the U.S. border of Washington State) to Prince George—450 miles. The highest ground elevation, shown on charts, is 4,000 feet ASL, the minimum recommended en route altitude is 5,000 feet ASL (Canadian version of MSL). Most of the route follows a highway, river, and railroad so that it is difficult to get lost. Good radio facilities (VHF and nondirectional beacon) are located at either end. Commercially broadcast radio stations are at two midway points, Golden (CBX, 1240) and Valemont (CBRI, 1240).

There is one 100-mile segment between Boat Encampment and Valemont where there is no highway or railroad below, only a narrow river winding its way through wild mountainous terrain. Weather is changeable here, and severe turbulence is possible at any point. Pilots of light aircraft should be constantly alert for rapidly lowering ceilings. There is a continuing highway from Valemont to Prince George.

From Prince George, the preferred route is to follow the highway and railroad to Fort St. John and continue up the Alcan Highway. Pine Pass, midway between Prince George and St. John, although not very high, is noted for strong winds, at times associated with severe turbulence. A combination of low altitude turbulence and very strong winds aloft can make this pass virtually *impassable* for light aircraft on occasion. At such times it may be necessary to detour around the mountains by following the Peace River westward to Hudson Hope and then following the northernmost segment of the "Trench" on up to Watson Lake and the Alcan Highway.

Prince George to Watson Lake

The northern segment of the "Trench" at Prince George to Watson Lake is a short cut to the Alcan Highway that follows a clearly visible valley all the way. However, except for the first 100 miles, between Prince George and Mackenzie, there is no highway. Between Mackenzie and Watson Lake, a distance of about 390 miles, there are no radio aids, no fuel, and only small or emergency airstrips; and some of these are not easy to spot from the air. Pilots intending to fly over this route are urged to stop at Prince George and get a careful updated flight briefing at the flight service station and a weather briefing as well. Mackenzie Lake has a good

airport with ADF and UNICOM *but no VOR*. This route is recommended in good weather only—and in daylight hours. Storms materialize quickly, and snow is possible during any month of the year.

Smithers

From Prince George it is also possible to head west, following some 100 miles of roads to Smithers, and then flying north to Watson Lake by way of Bell-Irving Pass and Kinaskan Lake. The pass is narrow, about 30 miles long, and reaches an elevation of 4,000 feet. (Minimum recommended en route altitude is 5,000 feet ASL.) The adjoining mountains are over 10,000 feet, and the pass area is notorious for bad weather. Beyond the pass there are no airstrips before Kinaskan except for one about 15 miles south of Kinaskan Lake, and *no NAVAIDs*. HF on 5680 Hz is effective generally for aircraft suitably equipped.

There are three airstrips along the 192 miles from Kinaskan Lake to Watson Lake; no radio or NAVAIDs exist en route. If the weather is clear, it is also possible to fly directly from Kinaskan Lake to Whitehorse via Atlin, some 275 miles over very high terrain, with one small airstrip at Telegraph Creek. Recommended en route altitude is 7,000 feet ASL. Again there are no radio or NAVAID installations along the route. There are numerous lakes suitable for seaplane use.

From Vancouver

U.S. pilots bound for the Alcan route from the vicinity of Puget Sound can make their way north to Prince George over several recommended passages. The normal route for wheel-equipped VFR aircraft proceeds east from Vancouver along the Fraser River Valley for 85 miles to Hope, and then heads directly north by way of Clinton to Prince George, a distance of 445 miles. This route follows Transport Canada airways and main highways and rivers for the entire distance. VOR communications are good and full facility airports are located at Abbotsford, Williams Lake, and Quesnel. There are private airstrips en route at Cache Creek, Clinton, Green Lake, 100 Mile House, and 108 Mile House, with several emergency strips in between. From Vancouver to Hope the suggested minimum altitude is 3,000 feet ASL, and from Hope to Cache Creek it is 5,000 feet ASL.

The latter segment is bordered by mountain ranges which separate moist coastal air from the normally dry air of the interior, making the area subject to rapid weather changes, sudden wind shifts, and extreme turbulence. Strong downflow conditions can be anticipated in the vicinity of Lytton, due to a funneling effect in the valley, especially on very hot summer days.

This route should not be used in deteriorating weather or when the cloud cover is below 6,000′ ASL, as the weather may change in minutes and close in to the surface. Several accidents have occurred in recent years under these conditions when pilots, instead of landing or turning back, attempted to detour through side canyons and were boxed in.

Cache Creek to Prince George

From Cache Creek to Prince George the route is over rolling country that forms the Central Interior Plateau. Below 5,000′ ASL radio navigation can be tricky, due to terrain contours, and, once again, mineral deposits and atmospheric conditions. For the visiting pilot, there are few recognizable landmarks. After Williams Lake, navigation is easier as the route rejoins the Fraser River Valley.

An alternate and somewhat shorter way to the central interior route is to fly west and north from Vancouver, B.C. by way of Squamish, Pemberton, D'Arcy, and Clinton, and then continue to Prince George along the Fraser Valley. This route is more suitable for float-equipped aircraft, as there are more water landing sites available than land strips. VHF communications are not effective here below 8,000′ ASL and there are no navigational aids available at lower altitudes. There is no road between D'Arcy and Clinton. The highest point along the route (Alta Lake, between Squamish and Pemberton) is usually the bottleneck in adverse weather. Some of the mountains in this area are permanently snow-capped.

Knight Inlet

Another westerly "overland" route out of Vancouver that is primarily recommended for floatplanes follows the Strait of Georgia as far as Knight Inlet, and then veers north to Smithers, Kinaskan Lake, and on to Watson or Whitehorse. From the Campbell River, at the head of Knight Inlet, the distance to Smithers is about 295 miles. The first 70 miles takes you through a narrow pass in the Coastal Mountains ringed by high mountains (over 10,000′), with a minimum recommended en route altitude of 5,000′ ASL. After the pass the route follows more open country to Smithers, and ADF (230) or VHF (122.2) radio communications are usually effective all the way. This is the shortest of the three VFR routes from Puget Sound to Whitehorse, approximately 955 miles, but it is recommended only for pilots of float planes who have had experience in flying over remote bush country—and then never in bad weather. The intermittent loss of radio communications, absence of recognizable landmarks, the changeability of the weather, the rugged terrain, and scarcity of human habitation—all of these conditions create a flying environment which demands much more of the usual vacationing pilot than is required by the kind of flying he is accustomed to in the United States. Errors of judgement or disregard for regulations or procedural recommendations can be costly.

VFR on Top

Perhaps the most serious and costly temptation for U.S. pilots is to continue a flight in uncertain weather by going VFR on top (illegal in Canada), then failing to find a suitable "hole" for a descent when fuel begins to run low. Pilots who attempt this operation may be buoyed by the belief that if they get into trouble some air traffic facility will be able to help them descend safely through clouds with radar or direction finder vectors. This is no uncommon experience in the U.S., but in the sparsely settled country north of the Canadian border it is likely to be an illusion—the necessary radar facilities or terrain conditions simply are often not there.

A case in point involved a father and son, both pilots, who had flown to Alaska in a Cessna 180 on a fishing trip. On their return flight, they entered Canada via the Alcan Highway route but turned off the highway at Whitehorse, intending to fly south to Smithers and Vancouver via Atlin Lake. As they were crossing over the Yukon/B.C. border they were unable to maintain a minimum recommended VFR altitude, because of the lowering ceiling, and decided to climb on top.

After two hours on top, the pilots were uncertain of their position, and decided to descend through a break in the clouds to apparent VFR conditions below. They broke out of the clouds at about 300′ above the ground in a canyon, attempted to climb out, stalled, and crashlanded in a river.

The father, in a dazed condition, managed to swim to shore, but could find no trace of his son. After an exhausting search of many hours (the river was heavy with glacier silt, and extremely cold), he salvaged an axe from the wreckage of the plane and hacked his way through the brush in a southerly direction, hoping to come to the lake. The country was heavily wooded and mountainous, so he stayed close to the stream, managed to catch an occasional fish, which he ate raw, and built a camp each night out of logs and brush. He also laid out a large SOS, either of logs or gravel, whenever he came to a broad clearing; he had no means of lighting a fire. A search pilot eventually picked up his trail of SOS signals, and the ragged, worn, and chilled survivor was rescued by helicopter three weeks and two days after the crash. The aircraft was located later, but the son was never found.

All of the routes over Canada to Alaska have some potential hazards for pilots who are used to depending upon constant NAVAID assistance or radar vectoring. This does not mean, however, that such flight over the north country is necessarily dangerous or difficult. If you are properly prepared and equipped, conversant with the rules devised for your protection, and able to make reasonably sound decisions on your own, you should have no difficulty. The journey may take longer than you had imagined but the rewards can also exceed expectations. Learning to look out for yourself, your companions, and your airplane with little or no assistance from ground facilities is an experience that can make you a better, safer pilot wherever you fly—over primitive mountains or over your own backyard.

And you may have restored a sense of adventure to your flying. *Au Canada!* ■

(Prepared with the generous assistance of Transport Canada, Pacific and Western Regions and Ottawa Headquarters.)

HOPPING OVER THE POND

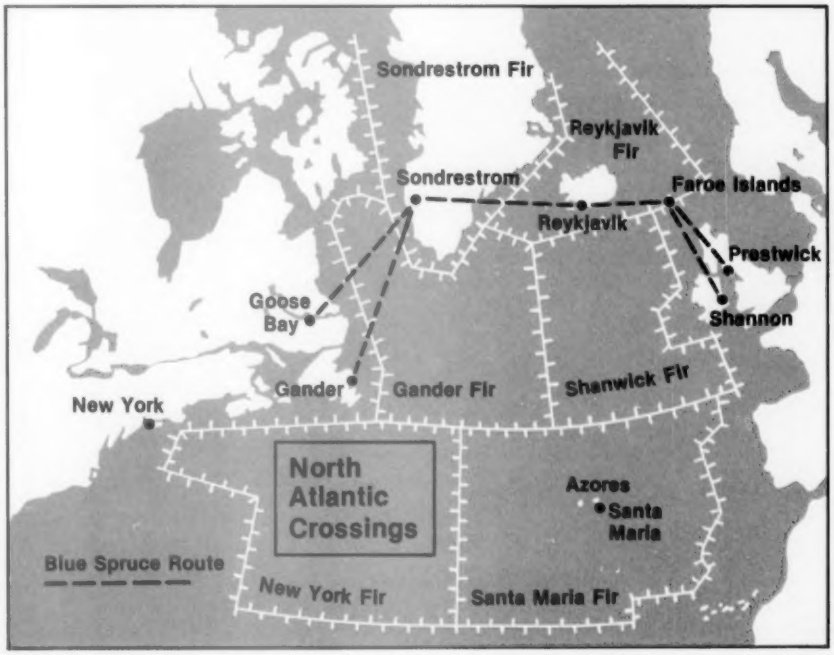
Some cautionary notes on flying over the North Atlantic to Europe

In July of 1938 a young man in an ancient Curtiss *Robin* (high wing monoplane) took off from Floyd Bennett Field in New York City for an announced nonstop flight to California. The entire flight was made through heavy clouds, which was remarkable considering that the aircraft had a minimum instrument panel, no radio, and only an obsolete "spirit" compass for navigation. Even more remarkable was the fact that the destination turned out to be Dublin, Ireland, where the smiling pilot, Douglas Corrigan, landed 28 hours later. At a time when much of the world was still living in the shadow of the Great 30's Depression and fearing the rumble of cannon that was to bring about World War II, "Wrong Way" Corrigan's flight was viewed as a heart-warming feat of courage, skill and a man's faith in himself.

Not to question any of these credentials there is still no doubt that the pilot was favored by an enormous quantity of good luck, considering the bad weather, the decrepit state of his airplane, and the absence of navigation or communication equipment for some 3,000 miles of overwater flying. The authorities frowned, and the instant hero was appropriately contrite.

Corrigan has had no known imitators, but in recent years the number of light aircraft being flown across the north Atlantic with minimum or inadequate equipment and preparation has increased to the point of international concern. As most of the traffic originates in the United States and heads east, requests for emergency assistance have affected official agencies at Greenland, Iceland, Ireland, and England, involving radio relays, patrol boats, and search and rescue aircraft. In meetings of the International Civil Aviation Organization (ICAO), member representatives have complained that some American transatlantic pilots of small aircraft display the same impulsiveness as Corrigan, as regards planning and preparation. The airplanes in use today are modern and more reliable, but American pilots are being faulted for BAD FLIGHT PLANNING in the following categories:

- Lack of appropriate navigation and/or communication equipment.
- Not obtaining or comprehending weather forecasts before takeoff.
- Not planning alternate courses of action in case the flight cannot be completed as planned.
- Not obtaining information about appropriate en route airspace and approach procedures.
- Absence of survival gear, including ELTs, thus making rescue action very difficult and expensive.



• Neglecting to close flight plans, leading to unnecessary search efforts involving units that may be needed elsewhere.

Air Carrier Traffic

The bulk of the air traffic over the north Atlantic, of course, is air carrier and business jet by nature and is flown through a block of airspace designated by ICAO for use only by aircraft with long range precision navigation equipment and able to comply with what are called "Minimum Navigation Performance Specifications." This MNPS airspace overlies the north Atlantic between latitudes 27°N and 67°N, between FL275 and FL400, and extends laterally across the Atlantic, essentially to the territorial waters offshore the North American and European coastlines. (The exact, somewhat complicated boundaries are shown on Atlantic Operations Charts.) Among other requirements, flight within MNPS airspace is contingent upon obtaining prior equipment approval by the aviation authority of the country of registry of the aircraft. U.S. pilots operating under Part 91 would have to contact the nearest FAA General Aviation or Flight Standards District Office. Part 135 operators should consult the FAA office that administers their operating certificate. Contact should be made (in either case) at least 30 days prior to the proposed operation.

Aircraft flying within MNPS airspace are required to maintain a course track accuracy with specified allowable deviations (see FAA Advisory Circular 91-49 or the International Flight Information Manual). This is important given the density of traffic in the area, the absence of radar coverage, and the high airspeeds generally involved. Sophisticated inertial and OMEGA long range navigation systems are being used.

Controlled Oceanic Airspace

The airspace over the north Atlantic, by ICAO treaty, from the ocean surface up to infinity is divided into six "Flight Information Regions" (FIRs). Controlled airspace includes not only the MNPS area already described but also the airspace between FL60 (FL200 in the Sondrestrom FIR) and the floor of MNPA (FL275). The Flight Information Region boundaries are defined on charts with an alternately marked line and identified by the name of the air traffic controlling facility:

- Gander (Newfoundland)
- New York
- Reykjavik (Iceland)
- Santa Maria (Azores)
- Shanwick (Shannon, Ireland/Prestwick, England)
- Sondrestrom (West Central Greenland)

An IFR flight plan is required for all flights in controlled airspace.

Note that these six FIR facilities provide the only VHF radio transmission and reception in the entire area (the VHF station at the southern tip of Greenland is remoted to Gander), and they are at least 500 nautical miles apart. It would not be possible to maintain VHF radio contact while crossing the north Atlantic except at very high altitudes.

To comply with ICAO treaty standards to which the United States is a signatory, U.S. aircraft in controlled airspace must be equipped ". . . with suitable instruments and with navigation equipment appropriate to the route . . . ." The type of instrumentation is not specified for flight below the floor of MNPS airspace (FL275), but it must enable the pilot to remain within assigned airspace and in continuous radio contact.

The narrow (60 mile) lateral separation of course tracks in this airspace (largely outside of radar coverage), plus the inevitable drift errors of long range navigation, oblige the pilot to do everything in his power to maintain precise course accuracy. The aircraft must also remain within the established longitudinal and vertical standards for the area of operation. These separation standards are detailed in the ICAO Regional Supplementary Procedures Document 7030. For flight conducted within international airspace under U.S. jurisdiction, the "Oceanic Air Traffic Control" Handbook (FAA Order 7110.83) provides a simplified version of these standards.

Note that FAR 91.1 requires U.S. civil aircraft to comply with the provisions of ICAO Annex 2, as well as other FAA regulations when operating over the high seas. The provisions of this Annex include the statement that ". . . An aircraft operated as a controlled flight shall maintain continuous listening watch on the appropriate frequency of, and establish two-way communication as necessary with, the appropriate air traffic control unit . . . ." (3.6.5.1)

In the event of a non-approved deviation in controlled airspace, action must be taken immediately to adjust the heading of the aircraft to rejoin the track as soon as possible; and air traffic control must be notified so that appropriate action may be taken to resolve any potential hazards to other aircraft. Without HF radio, this notification may not be possible.

In contrast to domestic flight under radar surveillance, operations in controlled oceanic airspace are based on "strategic" clearances, wherein separation depends upon accurate navigation to keep each aircraft within its protected airspace. Any significant navigation error could create a potential midair hazard, since the error would not normally be known to air traffic control.

Uncontrolled Airspace

Uncontrolled airspace over the North Atlantic Flight Information Regions extends from the surface up to 5,500 feet. Apart from the requirement that *all* international flights file and close a flight plan, this segment of the air over the north Atlantic is just about as free and open as it was in Wrong-way Corrigan's day. If the pilot is operating under Part 91 and not for hire in any form, he is bound only by the normal regulations governing domestic flight in uncontrolled airspace (unless he files an IFR flight plan, in which case he is required to maintain two-way radio communication with air traffic control and adhere to his clearance).

The absence of rules notwithstanding, pilots who intend to fly across the Atlantic in uncontrolled airspace are not relieved of any responsibilities, civil or Federal, as regards the adequacy of their preparations for accomplishing their intended flight safely under conditions that may be expected en route. Particularly essential are the possession of appropriate charts and a thorough weather briefing for the intended course and alternates; and the location, frequency, and range estimate of radio stations they expect to contact.

Some pilots are foolhardy enough to attempt a nonstop crossing with only VHF radio. At the low altitudes available they will be relying on dead reckoning for navigation, and depending on windspeed and direction forecasts which are

Publications and Charts

- International Flight Information Manual (IFIM)
  Annual subscription cost:
  $30 domestic
  $37.50 foreign
  Sold by: Superintendent of Documents, GPO
  Washington, DC 20402
- AC 91-49 (and Change 1) General Aviation Procedures for Flight In North Atlantic Minimum Navigation Performance Specifications Airspace
  Free from: DOT, Publications Section, M-433.1
  Washington, DC 20590
- Catalog of Aeronautical Charts and Related Publications
  Free from: National Ocean Survey
  Distribution Division
  Riverdale, MD 20840
  Telephone:
  (301) 436-6990
- En route Low Altitude Chart, Canada and North Atlantic
  Sold by: Canada Map Office
  Department of Energy, Mines, and Resources
  615 Booth Street
  Ottawa, Ontario, Canada
  KIA OE9
  Telephone:
  (613) 998-3865
- Jeppesen Charts Catalog (specify area wanted, example: north Atlantic)
  Free from: Jeppesen-Sanderson, Inc.
  55 Inverness Drive, E
  Englewood, CO 80112
  Telephone:
  (303) 779-5757

not always accurate over a protracted period of flight in this region.

This is a high risk activity. It has been done, certainly, but the necessary combination of skill, luck and weather can not be counted on for any given flight. Most U.S. pilots have had little experience with dead reckoning navigation, except in primary training, and the broad Atlantic, with its absence of landmarks, is a dangerous and nerve-wracking practice area. When you consider that a course error of 10° at a distance of 2,000 miles equates to a course deviation of about 350 miles, you can see the possibility of making your first landing closer to the Arctic Circle than the south coast of England.

Over a long flight of this kind in a relatively small plane, flying at low altitudes with the possibility of encountering unexpected weather and headwinds, the accuracy of your fuel consumption estimates can become a worrisome consideration. Engine oil depletion could also pose a threat, unless you have taken the precaution of installing a cockpit-accessible oil pump.

Most pilots with experience in this type of flying consider VOR *plus ADF* as absolute minimal navigation equipment for long range flying in uncontrolled airspace. Non-direction beacons which can be picked up by automatic direction finder equipment are strategically located in the north Atlantic area to assist in dead reckoning calculations. Several powerful commercial broadcasting stations in the region are also useful to ADF-equipped aircraft.

North Atlantic Abbreviated Terms

ADIZ Air Defense Identification Zones. Extend from surface to infinity. Unidentified aircraft flying faster than 180 knots may be intercepted by military aircraft.

CTA Control Area, controlled airspace over the ocean, effective within FIRs beginning at FL60, upper limits stated on charts.

FIR Flight Information Regions, delineated by —|—|— line. Extending up from the surface, unlimited upward.

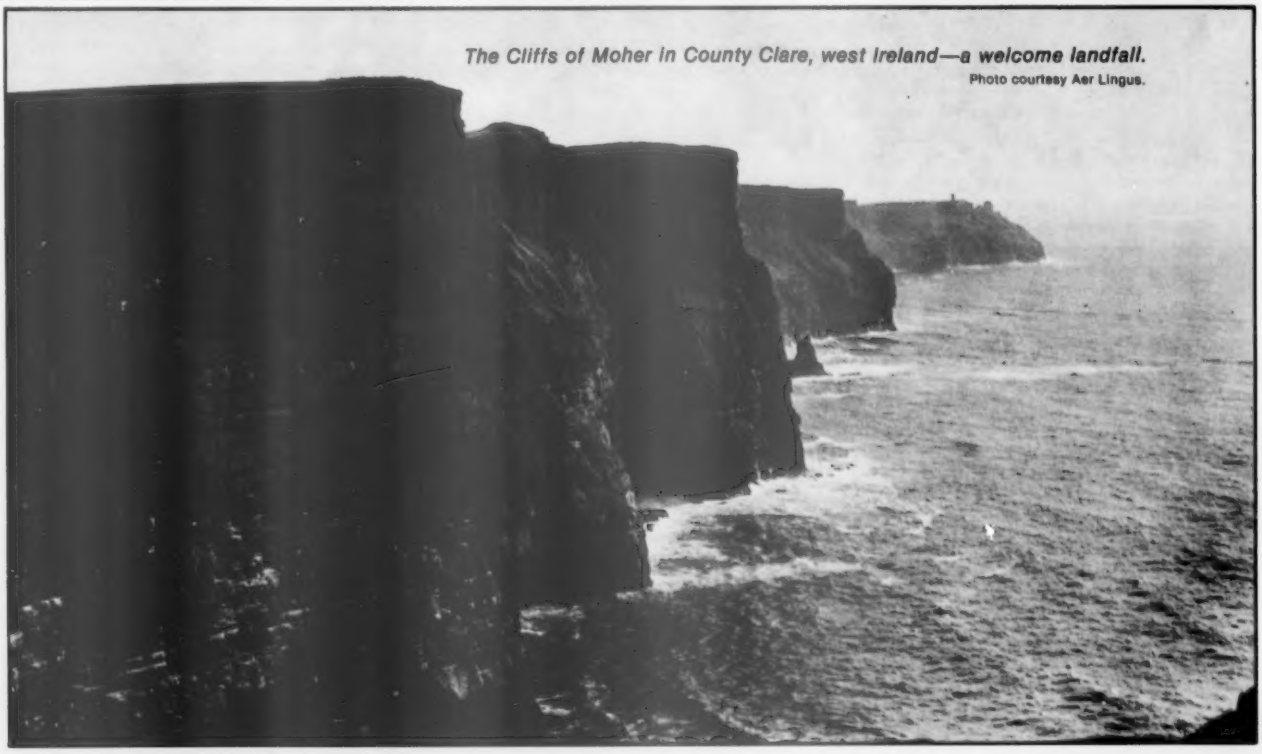
MNPS Minimum Navigation Peformance Specifications. Navigation capability required to operate in designated portion of north Atlantic between FL275 and FL400 and between 27°N and 67°N latitudes.

However, NDB transmission is substantially altered by atmospherics, precipitation noise, "shoreline effect," and other effects; and cannot be relied upon as the sole means of navigation. In any event the status of en route NDB's expected to be used, and the condition of the aircraft ADF, should be checked prior to departure. Remember that while under normal circumstances some ADF signals may be received hundreds of miles from the transmitter, signal effectiveness is not checked beyond 75 miles from that transmitter. The accuracy of commercial transmissions is not checked at all, and broadcasting may not be continuous. Other possible problems with these stations include:

- Infrequent identification of station
- Unfamiliar language (Icelandic, Danish)
- Part-time broadcasting
- Remote location of transmitter from studio location

An HF transceiver, on the other hand, even during flight at relatively low altitudes, will permit continuous radio contact with English speaking air traffic control stations during an entire north Atlantic crossing. Periodic terminal weather updates available on this frequency will greatly increase the accuracy of navigation, and may assist pilots in circumventing local storms.

For pilots not HF equipped, the routine use of the VHF emergency frequency (121.5) to contact air carriers at high altitudes for forwarding of position reports, or for navigation assistance, is not an acceptable procedure, as it has resulted in unnecessary alerts when no relay was within range. Such use could also block accessibility to the channel for others at critical moments. Relays should be used only for real emergencies.



The Cliffs of Moher in County Clare, west Ireland—a welcome landfall.

Photo courtesy Aer Lingus.

Granted, it is sometimes difficult to distinguish between actually being lost and merely being uncertain about one's position—in which case the pilot can only rely on his judgment about declaring an emergency. The north Atlantic is known for its high winds and rough seas. The survival aspects of ditching a light plane—or any land plane for that matter—in those waters without rescuers in sight are downright grim. Danish authorities, who are responsible for the region around Greenland and the Faroe Islands (between Scotland and Iceland), believe that at least one aircraft is lost every year in their icy waters. (Note: aircraft without HF are not permitted in the Shanwick FIR, which includes the Faroe Islands.)

Search and rescue aircraft based at Newfoundland, Greenland, Iceland, Ireland and in the United Kingdom are ready to scramble at a moment's notice, but the overwater distances are immense; and good visibility is the exception rather than the rule. Continuous radio contact is the indispensable lifeline across the Atlantic.

Other considerations which could avert a hazardous crossing include:

• **Conscientious hourly position reporting.** This is required only of aircraft in controlled airspace, but it is a good idea for all pilots. In the event of an abrupt emergency, such as engine failure at low altitude, crewmembers are going to be busy enough without having to take time to determine their position.

• **A face-to-face briefing** at the FSS nearest your departure point (required in Canada, where a rigorous equipment inspection must be made). Much more effective than a radio or phone call, this meeting can provide you with an opportunity to talk over the situation with people who know a good deal about it and may be able to help you avoid some serious blunders. They can tell you if the charts you have are adequate; show you the latest NOTAMs on equipment outages or airspace restrictions; pinpoint radio transmitters en route and give you their frequencies; recount the problems other pilots have experienced; help you plot the safest possible route; discuss typical weather activity along the way, etc. There is a great deal more they can do for you on dry land than they can once you start winging your way over the water. *Believe it.*

• **Generous, not merely "adequate" fuel reserves.** Wind shifts are notorious in this region. If you fall significantly behind schedule on your ground tracking, head for the nearest land and refuel—even if this means going back to your point of last departure. There may be a lot of oil reserves in the north Atlantic, but there are very few Avgas pumps. During the New York to Paris air race for general aviation aircraft several years ago, a number of airplanes had to be assisted to a landing at Reykjavik with only minutes of fuel remaining on board.

• **Avoid night flying.** Take advantage, whenever possible, of the long periods of daylight in the summer over the north Atlantic. Darkness and fatigue will compound whatever navigation or weather problems you may encounter, and could make it harder for rescuers to find you in an emergency. If you follow the so-called "Blue Spruce" route used by many pilots in light aircraft, via Labrador or Newfoundland, Greenland, Iceland and Great Britain, you can break up your journey into four legs of approximately 600 nautical miles or less and overnight safely on shore. This will minimize any navigational errors and maximize your chances of surviving an inflight emergency. (Lodging and aircraft handling ashore should be arranged well in advance.)

England at last, and some long awaited aerial sightseeing.

Survival Gear for Trans-Oceanic Flying

- Approved inflatable vests*
- Approved life raft for all on board
- Pyrotechnic distress signals
- VHF emergency radio (ELT)
- Water and food

*Vests should be worn (uninflated) during the flight. Donning and adjusting them during an emergency is much more difficult and time consuming than commonly believed.

• **Current publications.** Note that the U.S. International Flight Information Manual, published annually in April, is updated quarterly, as are many of the official airman information publications of the countries you may be visiting or overflying. If you use a commercial derivative of these publications, make certain it is current. Outdated information can get you into big trouble.

• **Pilot qualification.** An IFR rating, with experience in actual IFR flight conditions, is recommended. At 5,500′ and below, the likelihood of crossing the broad Atlantic in continuous cloud-free weather is not good. In the absence of a clear horizon, the monotony and immensity of the ocean surface can lead to pilot disorientation, especially for those who are not used to relying on panel instrumentation for controlling aircraft attitude.

In summary, the task of preparing properly for a safe crossing of the north Atlantic in a light aircraft is no small matter, and could easily consume much more time than the actual flight. It is still a very large ocean, requiring many hours of flying time, during which an engine, or two, might decide to misbehave. If you do not feel up to all the necessary preflight paperwork yourself, there are several highly reputable flight planning and weather service companies which will do practically all of that labor for you—work out your best routes, alternates, distances, needed radio frequencies, summary of regulations and means of compliance, weather interpretation, etc. Some will also provide you with inflight weather updates and navigational advice. (A good source of such services is the National Business Aircraft Association, One Farragut Square South, Washington, D.C., 20006.)

Expensive, but worth it. The water is very cold. ■

The first Rocket-propelled Aircraft

Aerodynamically speaking, it is a long, long trail from the return to earth of the ultra-sophisticated space shuttle *Columbia* to the advent of a rocket-propelled fighter in World War II. But there are U.S. Air Force veterans of the air war over Nazi Germany who still remember the dreaded anticipation of their first encounter, in 1944, with the Luftwaffe's "wonder-weapon," which some thought might yet turn the war around: the *Komet* rocket plane which reputedly materialized out of thin air with cannons blazing and slashed into their formations of B-17 bombers at nearly the speed of sound.

Unlike its namesake the *Komet* was born without a tail, conceived in 1926 as a delta-shaped, high speed, glider by a German aeronautical designer, Professor Alexander Lippisch, and originally named *The Stork*. There was no resemblance to the long-legged bird. Lippisch was simply honoring the creature which, mythologically, had just delivered a new arrival to his family. In fact the stubby, bullet-shaped aircraft had no tail and virtually no undercarriage; initially all control surfaces were in the swept-back wing, although later a rudder was added aft to maintain stability at high speeds.

In the early 1930's, when Germany began quietly building a new military air power, Professor Lippisch's tail-less glider was selected as the hull for the new Walter Rocket engine, fueled with liquid hydrogen peroxide mixed with hydrazine hydrate and methyl alcohol as a catalyst. Much of the advance design and construction for this highly secret "Project X" took place at the Messerschmitt factory in Regensburg, where the aircraft was officially designated as the Me-163.

By 1941 in test flights the *Komet* had broken all existing speed records and achieved a velocity of 623 mph in level flight. Other flight characteristics were almost unbelievably good, including a glide angle of 1:20; and Project X now assumed a top priority in production, visualized not simply as a fighter plane but as an "interceptor" to defend against Allied bombing raids.

In its final form the Me-163B was powered by a Walter rocket engine of 3,750 lb. thrust, providing a maximum speed of 596 mph at 30,000 feet (515 mph at sea level), a climb rate of 16,000 ft./min. and a service ceiling of 39,500 feet. The wing span was 37'7", the length 18'8". Empty weight was 4,200 lb., gross weight 9,500 lb. Armament consisted of two 30 mm cannon mounted in the wing roots.

Given the fact that the *Komet* had a total flight endurance of eight minutes (less after a climb to maximum altitude), a specific mission profile was worked out for short-duration interception: *immediately following takeoff ■ nearly vertical climb, with the main (jettisonable) wheels dropped soon after the nose was raised. Continue climb until fuel exhausted, level off and glide to attack area, highspeed (over 500 mph) dive to attack, fire cannons, dive away from combat area, touch down on belly skid and slide to ■ stop.*

To provide a cadre of trained pilots for this operation, top German airmen from operational units on various fronts were assembled at Regensburg. For many, the training experience was more demanding and dangerous than any aerial combat they would ever experience.

To begin with, the destructive volatility of the rocket fuel was a constant threat to life and limb. The fuel was capable of dissolving human flesh on contact, and in some unfortunate cases did so, completely. It was unstable to the point where leakage of small amounts through tubing joints led to tremendously destructive explosions on the ground. One pilot was last seen climbing into his Me 163B for a routine training flight. The next moment a terrific explosion completely destroyed plane and pilot—the only recognizable remainder of the latter was a boot found a hundred yards away. Since the rocket engine was internally located, toxic fumes sometimes found their way into the cockpit, with lethal results. The rocket engine itself was unpredictably temperamental, and occasionally exploded on takeoff, or landing, or ignition, for no apparent reason. Pilot dress was inevitably a special fireproof suit, and the training program was sometimes described as "learning to play with fire."

Other problems involved the airframe. The jettisoned landing gear sometimes did not break away, or rebounded up against the fuselage; an aborted takeoff with fuel on board almost invariably resulted in explosions and fire. Even a perfectly normal landing with a small amount of fuel inadvertently unexpended was usually destructive.

Accident survivors who were fortunate enough not to experience fire suffered very severe head and spinal injuries—a consequence, it was later determined, of the rigid design of the pilot's seat. Victims included Heini Dittmar, chief of flight testing, who spent two years in a hospital recovering, and Hanna Reitsch, noted test pilot. Miss Reitsch, after experiencing partial landing gear separation, lost control while trying to land and crashed into a field. She suffered a crushed nose, a quadruple fracture of the skull, fractured vertebrae and ". . . a few other injuries." Before the ambulance arrived to take her away Miss Reitsch quickly scribbled down her observations of what had happened during the flight, so that it " . . . would not have been in vain." You had to be dedicated.

Problems and hazards notwithstanding, operational squadrons of *Komets* were formed by early summer of 1944, and on August 16 were pressed into service in a desperate attempt to resist the Allied bombing offensive. Initially their startling speed and bizarre appearance caused confusion among some B-17 aircrews and there were reports (probably exaggerated) of "numerous kills" on contact. But in order to aim the fixed 30 mm cannon with accuracy *Komet* pilots had to close within 50 yards of their target—and to avoid collision they had to begin evasive action at 200 yards. Delicate gunnery! Very quickly the Allied pilots learned that the *Komet* was virtually defenseless after its first pass, and could be gunned down by any fighter aircraft that pursued it to the ground. Some 400 rocket planes were built before the end of the war (April 1945); more than half were destroyed in flight and many others shot up or captured while grounded for lack of fuel. So ended the threat of the Luftwaffe's wonder weapon.

After the war several *Komet* models and technical experts, including Professor Lippisch, were brought to the United States and the rocket engine airplane was tested at Edwards Air Force Base, in California. However, by this time safer, less expensive turbojet engines were already achieving enormous velocities in flight, and the *Komet* was relegated to similar antiquities of war. Thirty-six years passed before another rocket-launched aircraft, the *Columbia*, landed on the dry lakebed at Edwards. ■

BEATING THE ODDS. Roger A. Jones, a 43-year old quality assurance technician for Motorola from Mesa, AZ believes an airman can "make his own luck" by absorbing as much flight safety information as possible. His diligent attendance at "Safe Pilot" seminars paid off when his name was drawn from among 175,751 entries in the 1982 Safe Pilot $60,000 free airplane sweepstakes, sponsored by the general aviation industry.

DESIGNATED "REPS" TO ISSUE AIRWORTHINESS CERTIFICATES

FAA has amended Part 183 (Representatives of the Administrator) to include *Designated Airworthiness Representatives* as a new category of representatives. DARs will perform certain certification functions in maintenance, manufacturing, and engineering, currently done by FAA. This should shorten the public's waiting time for such service.

In accordance with their qualifications, DARs may be authorized to issue original and recurrent airworthiness certificates, experimental and restricted certificates, including certain special flight permits; and airworthiness approvals for exported products. They may also be authorized to conduct conformity inspections and issue airworthiness approval tags for U.S. manufactured spare parts.

DAR applicants must apply to the nearest Aircraft Certification or Flight Standards Regional Office, which will make the selection. Individual applicants must submit three letters attesting to their integrity, experience, and technical qualifications—including one from an FAA office with whom the applicant has worked. Organizations wishing to be appointed as DARs must submit the names and qualifications of each person who will be performing DAR functions, and a control procedure.

FAA will provide training in administrative procedures for selected DAR candidates, but no technical training will be provided, since applicants will have to demonstrate existing qualifications in the desired functions.

DAR certificates will have a one-year duration but may be renewed. They may also be terminated at anytime on various grounds, including inactivity. DARs may only perform those functions listed on their certificates, and they will receive FAA supervision.

For further information, write for the free Advisory Circular "Designated Airworthiness Representatives," AC 183-33, from the DOT Publications Branch, M-443.1, Washington, DC, 20590. Or write the FAA Office of Airworthiness, AWS-200, 800 Independence Ave., S.W., Washington, DC, 20591. Telephone: (202) 426-8361.

PARTIAL PANEL CORRECTION

A typographical error in the March/April 1983 *News* item "Instrument Ratings Will Require Partial Panel Skill" changed the meaning of the article. It should have read, "Pilot examiners and flight standards inspectors will *now* require demonstration of partial panel skills during instrument certification flight checks."

REPAIRMAN CERTIFICATION

The process for certificating aviation repairmen—who perform specialized maintenance functions in repair stations—has been changed to accept formal training approved by the FAA as an alternative to the 18 months of experience required previously, provided the applicant's working background is suitable.

Questions should be directed to FAA's Office of Airworthiness, General Aviation and Commercial Branch, AWS-340, 800 Independence Ave., S.W., Washington, DC, 20591.

The change only affects professional maintenance personnel, and does not (as some persons have mistakenly assumed) enable aircraft owners or pilots to be certified to carry out general maintenance.

Advisory Circular 65-24, "Certification of Repairmen (General)," covers this subject; free from DOT Publications Branch, M-443.1, Washington, DC, 20590.

U.S. SAR SATELLITE LAUNCHED, WORLD WIDE COVERAGE

The first of two U.S. satellites designed to pick up and transmit ELT signals to search and rescue centers was launched March 28 and is now operating 470 miles above the earth in a polar orbit. The combined weather/SAR satellite joins two Soviet packages in orbit for the same purpose.

Location of the ELT signals of downed aircraft is accomplished by Dopplar shift and is accurate to within 12 miles. A second U.S. satellite is scheduled for a spring 1984 launch, as the last phase of an evaluation program to assess the practicality of a satellite net that would provide worldwide coverage.

One problem of concern is possible innundation by "false alarms," since the satellites will pick up virtually every ELT activated anywhere in the world—and 97% of the signals are inadvertent. The already time-consuming task of segregating false alarms from genuine signals could be increased several fold.

Pilots can help by adding to their shutdown checklist a firm requirement to listen on 121.5 (or 243) MHz for their own ELT signal; by test-activating their ELT output only during the accepted first five minutes after the hour time slot and by being ultra cautious about disarming ELTs before transporting them.

NOMINATING CFI'S AND A&P'S

Nominations are once again in order to select the top U.S. flight instructor and maintenance technician of the year.

To be eligible, a certificated flight instructor must be active as a civilian instructor, and the maintenance technician must be a full-time certificated mechanic or repairman, or FCC licensed technician working on general aviation aircraft.

Nominations must be submitted to the nearest FAA General Aviation or Flight Standards District Office by July 18, 1983. National winners will be selected September 1 and flown to Washington, DC for an October 27 ceremony at FAA Headquarters, where they will receive their awards, cash, and other prizes.

Contest criteria and applications may be obtained from your local Accident Prevention Specialist or Coordinator. Nominations may be made by any interested person, including the nominee.

CHILD SAFETY SEATS

FAA and the National Highway Traffic Safety Administration have agreed on criteria for child safety seats that may be attached to seats in both aircraft and automobiles. (Although not mandatory for aircraft, some states require safety seats in cars for children under five years of age.) Upcoming testing will determine which of the existing child safety seats will meet the standards for installation in aircraft.

• Multi-Engine PIC

May a private pilot, with Airplane Single-Engine Land rating, log PIC time while receiving dual instruction in a multi-engine land airplane from a multi-engine flight instructor?

Can a pilot with the same qualifications (ASEL) log PIC time while flying a multi-engine land airplane after a flight instructor has endorsed his or her logbook for multi-engine flight?

David Palumbo
Las Vegas, NV

A private pilot may log as PIC only that time during which he is sole manipulator of the controls of an *aircraft for which he is rated* [Part 61.51(c)(2)]. Thus a pilot who is not yet multi-engine rated (i.e., taking instruction) may not log dual multi-engine instruction as PIC time.

For your second question: yes—with proper endorsement, that time may be logged as PIC time.

• MTR Altitude Identifiers

Your article "Occupied Air" in the January/February 1983 issue had a lot of good information for general aviation. However, I am in disagreement on the way IR and VR military training routes are identified. The articles states that "IR and VR routes confined to 1,500 feet or below will be identified by a four-digit number." In accordance with FAA Special Military Operations Handbook 7610.4F, this is not quite correct. It states that if any one or more segments of the IR and VR route is above 1,500 feet AGL then it will have a three-letter identifier. If no segment is above 1,500 feet AGL then it will have a four-letter identifier.

John G. Gillespie, Jr.
Kingsville, TX

Thanks for helping us clear that up. In our summary of MTR information from the *Airman's Information Manual* that essential point was omitted.

• April Fool?

Can we assume there is a relationship between the arrival of the January/February 1983 issue one day before April 1st and the fact that was April Fool's Day? The articles on ground icing and winter fuel problems would have been appropriate with a reasonably timely delivery of that issue.

Raymond W. Patridge
Plumsteadville, PA

Granted. The Government Printing Office advises us that they found the January/February print run was short, and this necessitated a 15-day delay in mailing before the printer could complete a new press run.

All we can say is that we have a new printer now, and expect better service. Please let us know if you have similar problems in the future.

• Back in the Fold

Thank you for responding promptly to my plea for an undelivered copy of FAA General Aviation News *and for the on-time delivery of recent issues. I appreciate your help very much.*

Let me add that I agree with the editorial reply to my earlier letter, which complained about the high price of this publication. You are right—a diligent reader should find himself well compensated for his investment, in terms of time, effort, money—and perhaps lives saved. I did resubscribe.

Newton W. Miller
Redlands, CA

Quite frankly, we have lost quite a few subscribers on the cost issue. With loyalty like yours, we hope to be able to continue publication. We thank you.

• Where Credit is Due

I would like to comment on the article you printed in your March/April 1983 issue, entitled "A Farewell to GAR." It is good that the system is once again getting back to handling the traffic at the pre-strike levels. Your last statement in the article read, "GAR did its job because of the fine cooperation between pilots and controllers, plus everyone's determination to make the best of some difficult situations."

Noticeably, we in the flight service stations were not mentioned. When GAR started we had about one week's notice to prepare to govern the allotting of GAR slots. We were to do this job in addition to our normal workload with no increase in staffing. It did increase our workload, but somehow we managed to hold on. Now that everything is settling down and getting back to normal, are we being forgotten as having had a part in it all?

Claudius W. Cope
Joplin, MO

The contribution of flight service station specialists to the success of GAR is not forgotten, and we regret the oversight of not mentioning your role.

• Tire Credit

The pictures on p. 7 of the March/April 1983 issue ("Hot Landings and Cold Nights") of the various tire defects were very informative. I'm sure they will help many pilots spot problems before flights. Thanks.

By the way, where was the title photo taken?

Frances Weissman
Reno, NV

The desert photo, by Ruth Benedict, was taken near Scottsdale, AZ. The tire photos are from Goodyear's new booklet, "What you should know about aircraft tires." Glad you liked them.

• Frequency Change Not Approved

According to our air traffic controller, unless specifically told to switch from tower frequency to ground control, the pilot should remain on tower frequency, even after clearing the runway to request taxi clearance. I suspect that he is right; however, I have noticed that virtually all pilots who use this airport as home base automatically switch from tower to ground control after clearing the runway.

Can you enlighten me as to the best way to proceed in this matter, both here at home and away?

Virginia B. Midgette
Mobile, AL

Paragraph 235(b) of the *Airman's Information Manual* states that "A pilot who has just landed should not change from the tower frequency to the ground control frequency until he is directed to do so by the controller." If you do not receive such instructions after what seems like an appropriate interval, call the tower and request the switch, *before* taxiing.

FAA GENERAL AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFO-807, Washington, D.C. 20591.

• Printer Change

FAA General Aviation News is, in my opinion, the best aviation publication in the country—easiest to read, most concise, most informative—I could go on indefinitely. I prefer it over the ad-infested publications.

I have only one complaint: I received my January/February 1983 copy on March 22.

This issue had two dynamite articles—one on ground icing, the other on winter fuel problems. I truly feel these articles should have been published some time at the beginning of winter rather than on the first day of spring.

I don't mean to be sarcastic in any way, but in view of the fact that you mail the publication Third Class Bulk, maybe you could lead the calendar some more?

Lewis R. Rossman
Randolph, MA

• Large and Turbine Only

As both a flight and ground instructor, I welcome each new issue of FAA General Aviation News *and scour the pages for new information to pass on to my students. The January/February issue, however, sent me hurrying to my copy of Part 91 to double check FAR Part 91.209, which falls under Subpart D, "Large and Turbine-Powered Multi-engine Airplanes."*

The implication in the article "Ground Icing" was that Part 91.209—requiring removal of frost, snow, or ice prior to takeoff—applied to all aircraft operated under part 91. While I most heartily concur that it is the responsibility of the pilot of any aircraft to do so, it is my understanding that this is not a regulatory requirement for pilots of small aircraft.

Implications notwithstanding, I especially appreciated the article since I had my own aircraft de-iced of a good inch of frost at Jackson Hole. The extra cost and time to have the plane hangared, heated, squeegeed, and dried now mean even more to me.

Kurt Meyers
Flagstaff, AZ

You are correct. Part 91.209 *does not* regulate small private aircraft, although the hazards are certainly just as great.

INSTRUMENT CORNER

• Logging VFR on Top

Can a pilot who is instrument rated, current and fully qualified, log as instrument time a portion of a flight which is conducted as VFR on top of clouds? Can this time be counted toward the currency requirement?

Noel Graubart
Houston, TX

FAR Part 61.51(c)(4) states, in part, that "A pilot may log as instrument flight time only that time during which he operates the aircraft solely by reference to instruments, *under actual or simulated conditions* [emphasis ours]." Of course, if you were accompanied by a pilot rated in the aircraft and acting as a safety pilot while you operated the aircraft solely by reference to the instruments, such time could be logged as instrument time.

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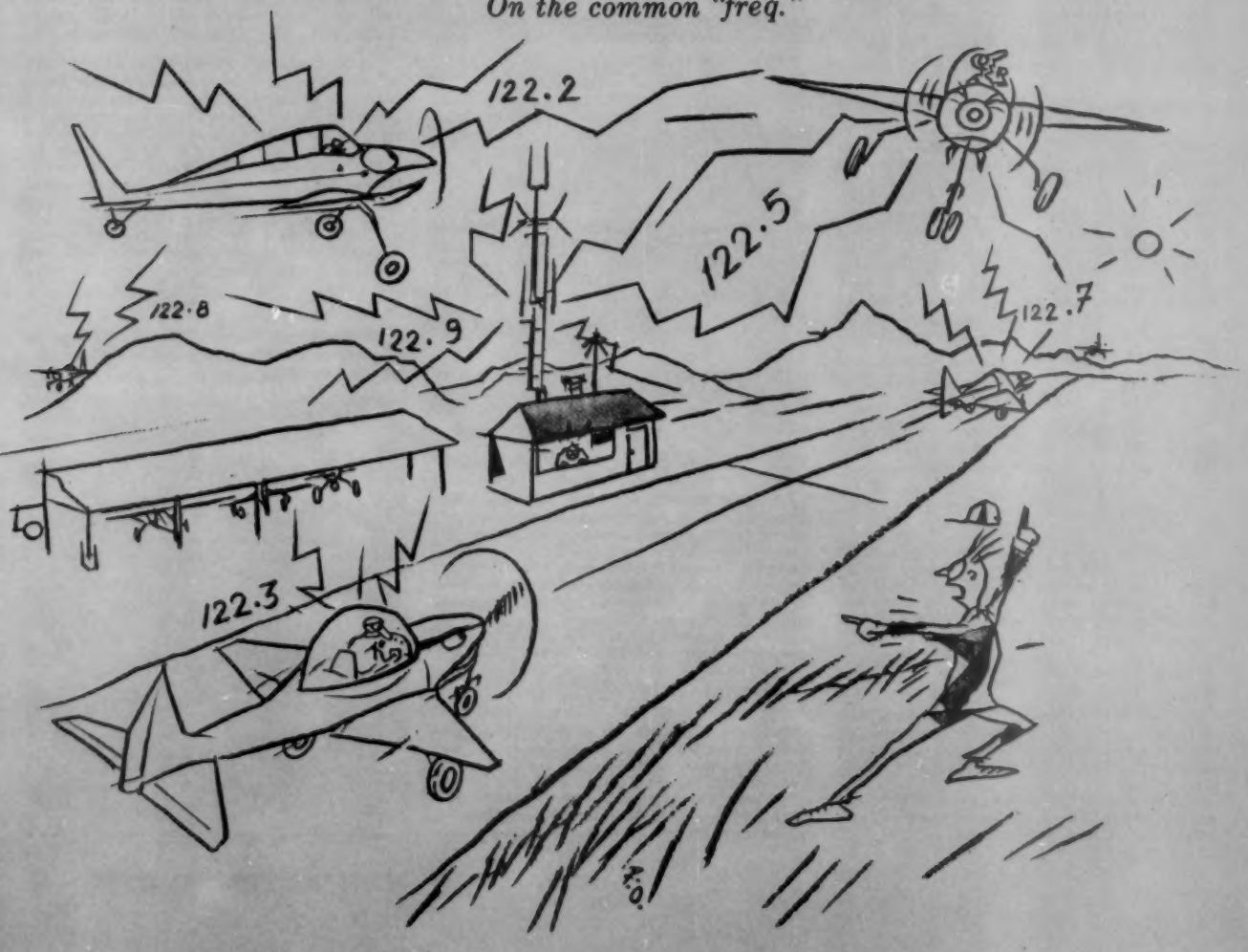
Listen and speak

On the common "freq."